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ONTARIO PUBLIC SCHOOL BOARDS' ASSOCIATION

# RESPONSE TO THE TECHNOLOGICAL EDUCATION CONSULTATION DOCUMENT

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THE ONTARIO PUBLIC SCHOOL BOARDS' ASSOCIATION

The ONTARIO PUBLIC SCHOOL BOARDS' ASSOCIATION
represents 94 public boards of education of all sizes and
from all regions of the province which serve
over 1,700,000 students and adult learners.
OPSBA speaks for public education in Ontario
and represents the interests of public school trustees
to the government, the public and the media.

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## Introduction

The Ontario Public School Boards' Association welcomes the opportunity to respond to the Ministry of Education consultation paper on Technological Education. As OPSBA has noted in other documents, adequate consultation is essential to the success of both the development and the future implementation of new education policies and restructuring initiatives.

While commending the Ministry for developing a framework that ensures the early and ongoing involvement of the key parties, OPSBA has major concerns about certain aspects of the consultation process in general, and about the approach to the study of technological education in particular.

## The consultation process

An examination of all facets of education from the early years of school to the transition to the world of work or post-secondary education is a massive undertaking. It is understandable that the Ministry would wish to reduce the task to more manageable proportions. However, OPSBA is disappointed in the fragmentation of the Ministry's approach.

Specifically, there is no overall framework which clearly states the goals of education and within which discussions on different aspects of the education system can take place. There is no clear understanding of the role of schools and what they are expected to achieve.

As a result, OPSBA has encountered particular difficulties developing a response to the consultation paper on technological education. The selection of technological education as a discrete topic for consideration indicates the Ministry's recognition of the importance of such studies for today's students. However, OPSBA is concerned that this discussion is taking place without the necessary framework. Questions concerning the development of specific skills or the provision of specialized training are meaningless without consensus on the responsibility of the schools in these areas.

Nor is it possible to consider the implementation of initiatives in a certain subject area without taking into account such factors as the unique learning styles of children and their development at different stages of the school system. Yet, the documents regarding the early, formative and transition years are also being treated in isolation. The consultation paper on the Specialization Years - the time when a great deal of technological education would be concentrated - is not expected until the fall.

There is, therefore, a need for co-ordination of the various workteams at the Ministry level. Education does not come in packages but should be viewed as a continuum. The Ministry's plans for restructuring offer an unprecedented opportunity to step back and examine the entire system holistically.

In addition to the implementation of a consultation process to aid in establishing a framework within which to formulate discussions on the specific components of the restructuring initiatives, a mechanism for co-ordination of the various Ministry restructuring activities is required. OPSBA repeats its recommendations that:

> **Before a detailed examination of the various segments of education occurs, there must first be consultation on the overall goals; what we want to achieve by the end of mandatory schooling for every student; and what is the role of the schools in this process;**

and that:

> **The Ministry of Education establish a coordinating workteam which will not only develop the consultation document on the overall framework within which the specific initiatives related to the various segments of education are to be considered, but would ensure that the various workteams are drafting their consultation documents with the same understanding of the goals of education.**

**The consultation on technological education**

Besides the overriding concerns regarding the fragementation of the consultation process, several issues relate specifically to the discussion on technological education. These also need to be addressed before a useful discussion of policy options and restructuring initiatives can take place.

Firstly, OPSBA is concerned that the Ministry of Education may have already developed timelines for implementation of initiatives in technological education. The allocation of $60 million towards the upgrading of programs in broad-based technology is an example. As restructuring plans have not yet been formulated, how can boards upgrade their programs without direction? Has the Ministry begun to make changes without a plan? And if so, how debatable are these decisions?

OPSBA is a willing participant in the restructuring process, but does not wish to see change implemented hastily, only to be regretted shortly thereafter. There is a difference between a flexible system with the ability to adapt to new ideas and one that is perpetually in a state of flux. Many changes have occurred in the school system in recent years - both organizational and curricular - and there is a need for stability for both students and teachers. Initiatives such as destreaming in Grade 9 are still at the pilot stage. If the Ministry is really considering massive change throughout the system, it is important to take time for evaluation and to determine what can realistically be achieved.

Secondly, OPSBA would like reassurance that the parties involved in the current consultation process will also have the opportunity to participate in development of the ensuing policy papers.

FInally, as discussion of specific curricular initiatives would be premature without comments from the Ministry of Education on other consultation papers, OPSBA has addressed the Issues and Options section quite briefly. Several areas that are, at this stage, relevant to school boards are discussed in more detail. These are:

- the need for a clear definition of technological education;
- changing attitudes towards technology and technological studies;
- linkage programs with business and industry, post-secondary institutions and the community;
- teacher education, and
- funding.

**What is Technological Education?**

Canada faces a growing shortage of skilled workers. Backed by numerous studies and reports, business and industry confirm that, in order to remain economically competitive in world markets, this country must have more graduates equipped with technological skills and understanding of technological processes.

In spite of these warnings, and of efforts by governments, labour, employers, and educational insitutions to attract students into this field, the number of registrants in technological programs in many areas continues to decline.

Within this context, the Ministry of Education is working to redesign technological education as part of its larger plan to restructure education to meet contemporary needs. The consultation paper supports the integration of technological education with subject matter across the curriculum, leading to increased awareness and understanding of technology for all students.

OPSBA believes that technological literacy is a life skill in today's world. Schools have a responsibility to provide all students with exposure to technological concepts and, for those who choose, opportunities to develop their interests further. Technological awareness must be an integral part of a basic education for all students, whatever their eventual career choices.

Definition of Technological Education

OPSBA is concerned that there is no clear definition of technology or technological education in the consultation paper. While the working paper "The Way Ahead" mentions classroom activities in the early years that are "technical in nature" and describes possible methods of introducing an integrated approach to programs in later years, nowhere does it present a precise statement of meaning. The most recent reference would be the Ministry of Education 1985 curriculum guideline on technological studies in the intermediate and senior divisions, which discusses the aims and purpose of technological programs in Part A: Policy for Program Planning. Should boards assume that this description is still valid?

Rather than calling for assumptions, it would be preferable to have a clear, current statement as a basis for further discussion. This will be particularly important when the consultation paper on the specialization years is circulated in the fall.

Similarly, use of the adjective "broad-based" in connection with technological studies is open to a variety of interpretations. Does this refer to a conceptual approach to learning rather than practical? Or should it be assumed to include both?

Agreement on definitions will facilitate implementation. To incorporate technological awareness and understanding into a student's learning experience throughout the school years will require support across the system. The most laudable initiatives will be ineffective without clear understanding and support on the part of school boards, administrators, teachers, students and parents.

For the purpose of this discussion, OPSBA adopts a general definition of technological education as the integration of intellectual and practical activities. Technological courses are both a body of knowledge and an educational process that teaches problem-solving and analytical skills. Broad-based technological education would provide an overview of the applications of technology in particular business and industrial sectors, and in society as a whole.

OPSBA cautions against too narrow a view of technological education. Although discussing the integration of technological concepts from the early years of

schooling, the consultation paper stresses the "five new technologies." It appears to place more emphasis on courses in the secondary schools than in elementary.

Education is a continuum and must be considered holistically. Each stage of the education system builds on what went before and provides the foundation for what is to come. OPSBA argues elsewhere that no new curricular initiative should be discussed without first considering the unique needs and characteristics of the learner at each stage. How, for example, would the concepts of the five new technologies be presented in a Grade 4 classroom? It is important to identify activities that are already taking place in the junior kindergarten classroom and up and build upon them.

The paper also leans towards the industrial sector rather than the communications technologies. For many people, the perception still holds that auto mechanics, carpentry, bricklaying and traditional shop courses constitute technology. These activities are indeed technological, and they serve a valuable purpose. But in the context of broad-based technological education, they are only a part of the whole. Similarly, in the area of new communications technology, learning to program a computer is more likely to be viewed as technological than is using it as a tool and resource in other learning and leisure activities.

Communications technology is such that it can be, and in many schools is being, used to advantage in any subject area. Computers assist in learning language, history and other subjects, as well as science and technology. Teachers have seen significant progress in exceptional students who have access to a computer.

In 1989, Professor J. Dale Burnett of the University of Lethbridge Faculty of Education told the National Conference on Curriculum , Instruction and Leadership that the effect of computers on learning would be "subtle but pervasive." "Word processing helps the student develop her own voice . . . a dynamic, flexible medium for clarifying one's thoughts." Once elementary students learn to type faster than they write, he said, they are free to concentrate on the content.

For many students, technological education will be the means to an end, not the end itself. Not all students can be expected to pursue technological studies to the specialization stage. Schools help students develop skills for life - basic literacy and numeracy, critical thinking, adaptability, learning to learn. They are not responsible for teaching the specific skills that will be required in the rapidly changing technological workplace. It is not possible for schools to keep pace with changing requirements, and students can become trapped if specific technological skills are defined too narrowly. A broad-based program should provide an overview, enabling students to explore interests and options and develop a base

for further specialized learning, either in the workplace or at a post-secondary institution..

Co-operating with the private sector and post-secondary institutions, schools can provide opportunities for students to gain exposure to new equipment in the workplace and to develop greater respect for the value of technology in their everyday lives. Initiatives of this nature are discussed further in the section on 'Linkage.'

**Teacher Education**

OPSBA is disappointed that teacher education is not an integral part of all the consultation documents. Changing the direction of education in any way is costly. It requires extensive teacher in-service to ensure that new policies and initiatives are understood, accepted and implemented effectively in the classroom.

Besides teacher education requirements that may arise out of the restructuring initiatives in general, the new directions in technological education will affect teachers throughout the school system, both technological and non-technological. Certification of new teachers will be influenced, and Faculties of Education will need to modify their programs.

Technological teachers

School boards are already experiencing difficulty staffing technological programs with qualified teachers. According to a report by the Ontario Secondary School Teachers' Federation (OSSTF) on a survey of secondary schools in the summer of 1990, over 100 teaching positions were being filled by unqualified teachers on Letters of Permission. Supply/demand statistics showed an overall shortfall of 163 teachers (includes R.C. Separate School boards). In addition, a large number of retirements is expected within the next two to five years.

OSSTF also noted a trend in shop closures. Many schools are converting shops to non-technological classrooms, an issue that has also concerned OPSBA for some time. The report attributed the closures to a combination of circumstances: the implementation of OSIS, declining enrolments, teacher retirements, the transition to new technologies, public school transfers to separate boards, and out-dated equipment or facilities. The teacher shortage serves to aggravate the problem. "Although there may not be a direct correlation between shop closures and teacher shortages," said the report, "it is a general rule that once a shop is closed, it stays closed."

OBSBA is aware of variations across the province. With the transition to the new technologies, some boards are closing redundant shops without the intent of ever reopening them, while other - generally smaller - boards are fighting to keep shops open.

Obsolete shops, outmoded equipment and out-of-date staff do not reflect the excitement of the new technologies. The transition to the delivery of broad-based technological programs must project an atmosphere of renewal and a positive emphasis. Two areas are addressed here: updating and upgrading opportunities for current teachers, and the recruitment of new teachers.

Many of the current technological teachers came from industry during the expansion of technical programs in the 1960s. Not only have equipment and processes changed considerably since then, but the broad-based approach to technological education will require additional skills and knowledge. To remain current, technological teachers need opportunities to update and/or upgrade to meet the new requirements.

Up to now, technological teachers have generally made independent provisions for updating and retraining at their own expense. Courses and other retraining opportunities have been made available through community colleges and organizations such as OSSTF and the Ontario Technological Studies Co-ordinators' Council. Some school technological departments have made arrangements with local industry. Until very recently, however, as a 1988 report from the former Association of Large School Boards in Ontario (ALSBO) observed, there has been " little available to enable a drafting teacher to move into computer-assisted drafting, or an electrical teacher into electronics, for example, and access to such opportunities may still depend largely on one's location in the province."

It is noteworthy that, according to the OSSTF survey, "a mismatch between the supply of teachers and the demand in specific subject areas" compounds the teacher shortage. Subjects showing teachers in greatest demand are from Electrical, Electronic and Computer Technology, Drafting and Design, and Transportation groupings. The Design and Technology Teachers of Ontario have stated their willingness to assist the Ministry of Education in designing training programs and retraining programs for teachers with an Industrial Arts background.

ALSBO added that the problem appears to lie more in "the lack of opportunities and incentives to update than in reluctance on the part of the teachers. There is no official recognition or encouragement of updating efforts, and no organized way of assessing needs or individual willingness. Although industry has indicated

its willingness to help, the Ministry of Education provides no funds for such purposes, and many boards cannot afford the necessary time or supply teachers."

OPSBA is pleased to see in the funding criteria for the 1991-92 technological equipment renewal grants that the Ministry acknowledges the need to assist technological teachers to update. However, .provisions whereby boards may elect to spend up to $8,750 per school on in-service training are inadequate. Funding for in-service must be available to all boards, not only those that are able to obtain the grants. In addition, assistance should be ongoing and should take into account the need for resources other than funding alone.

It is essential that the Ministry of Education take action to address the shortage of technological teachers qualified to work within the broad-based technologies, and to develop mechanisms to provide equitable access to retraining opportunities across the province.

To remain current with changes in the workplace, technological teachers would also benefit from initiatives such as exchanges with business and industry. (See also "Linkages")

In-service for non-technological teachers

Experience has shown repeatedly that implementation of any new initiative has little chance of success unless teachers receive adequate preparation. Non-technological teachers who must introduce technological concepts effectively into the curriculum must receive appropriate in-service training and support materials. Boards cannot afford to provide the necessary funding - this must be a provincial responsibility.

Teacher Recruitment and Certification

As noted earlier, there is already a shortage of qualified technological teachers. This situation will become increasingly serious as more teachers retire within the next few years. As a technological teacher cannot teach an academic subject without a university degree, the move towards the broad-based technologies will likely place more emphasis on academic credentials. It may become increasingly difficult to attract people from business and industry into the school system.

OSSTF observed also that technological teachers who do have degrees "may be tempted into academic areas where the rate of change seems less accelerated and the professional development focus is on pedagogical rather than technological change."

OPSBA recommends that the Ministry of Education work with teacher organizations and the Ministry of Skills Development to consider ways to address current and future staffing needs. These might include a review of certification requirements, and initiatives such as articulation arrangements with post-secondary institutions that would enable technological teachers to earn credits towards a degree while broadening and upgrading their technological skills. Other possible options are sabbaticals and paid leaves for, perhaps, one semester every five years.

Meanwhile, OPSBA is pleased to hear of the development of co-operative programs between colleges and universities specifically related to the training of technological education teachers, such as the program being developed between Brock University and Mohawk College.

**Linkages**

OPSPA supports the development and expansion of links between schools and the world of work. Co-operative arrangements with local business and industry assist school programs to remain relevant to the needs of students and the workplace of the future. Initiatives such as Co-operative Education programs, Adopt-a-School, and SWAP (School and Workplace Apprenticeship Program) serve a valuable purpose.

Co-operative Education programs enable students to combine classroom learning with work experience. Students are exposed to different career options, and some placements lead to future apprenticeships or job opportunities. OPSBA stresses the importance of developing these programs to involve more students and a greater variety of placements. Unfortunately, this is difficult in a time of recession when some businesses may withdraw their participation. Smaller boards also experience problems finding suitable placement opportunities. However, Co-operative Education programs could be designed to encourage community involvement and citizenship, not only orientation toward future employment.

Small business can play an important role in providing apprenticeship opportunities and their involvement should also be encouraged.

OPSBA believes that school-workplace linkages should be encouraged and expanded wherever possible. It is interesting that in industrialized countries such as Germany and Japan, where such links are more highly developed, there is also greater respect for technology. Business and industry have a direct involvement in the development of school programs and students are streamed early into apprenticeships. While OPSBA does not support the concept of early streaming, it

would be useful to consider alternatives to these programs that might achieve the same ends. Whether the more positive image of technology is attributable to the close linkages or to different societal values, the involvement of business and industry in the development of curriculum materials nevertheless has merit.

Does the Ministry of Education have any plans to move in this direction? If not already the case, OPSBA recommends co-operation between the Ministry of Education and the Ministry of Skills Development to encourage further linkages.

In addition to ties with business and industry, a number of school boards have entered into more formal articulation arrangements with community colleges and other local educational institutions. These arrangements provide a number of benefits for boards, including access to exchange and upgrading opportunities for teachers, experience with up-to-date technological equipment and program expectations for students, and better program articulation.

### Changing Attitudes

Business and industry are calling for graduates with technological skills and awareness. Education is not responding to their calls, and students continue to select academic courses of study. In most areas, enrolments in technological courses continue to decline, and shops are closing. A 1989 OPSBA survey concerning OSIS indicated that many students in advanced level never develop literacy in technological or business areas.

The challenge for the school system is to turn this situation around, to attract students at all levels of ability into technological programs. This will involve changing the perception that technology is neither clean, useful or rewarding. The integration of technological concepts from the early years of schooling should increase acceptance, but today's junior kindergarten pupils have a long way to go before they enter high school.

A public relations campaign is necessary now to inform students, their parents and the public of the benefits of technological studies, whether or not they lead to a career in technology. The campaign could employ a variety of means to promote today's new image of technological courses, and answer the student who asks "What's in it for me?" It should be a joint effort involving the Ministries of Education and Skills Development, teacher organizations, labour and the private sector as well as educational institutions.

OPSBA has noted the lack of a definition of technological education. In order to send out a message that promotes a credible image, a clear statement is essential.

The message must show that technology is part of today's lifestyle, and will be even more so tomorrow. Technological skills and understanding are a life skill. Technological courses are good preparation for all students, whatever their career choice.

Within the school, guidance counsellors play an important role in students' course selection and career choices. They can stress the advantages of technological studies whether students plan to enter the workforce directly or continue their education at the post-secondary level. A drafting course in high school, for example, provides a prospective engineering student with a headstart on a first year university engineering course.

Individual schools can also invite former students who have been successful in industry to discuss their experiences, and encourage current students to promote technology among their peers. Science and technology fairs held jointly by schools, local community colleges and business and industry have proved successful events in several communities. The Ministry of Education could also develop a travelling road show to visit communities throughout the province.

Other possible public relations initiatives include newspaper advertising and radio and television commercials developed in co-operation with labour and the private sector.

OPSBA stresses that the need to enhance the image of technological education is not an individual school problem. The crisis is province wide and the costs of funding activities to address the situation should be shouldered by the province.

Other considerations need to be taken into account. Schools tend to cater to "fast tracking" and the lack of interest in technological courses is often attributed to the number and selection of compulsory credits required under OSIS. Many students satisfy the requirement for a business or technological credit with a keyboarding course, which can only be considered a life skill today. In addition, there may be hidden compulsory courses resulting from university or community college expectations. Students do not get the broad exposure to interest courses that was the original intent of the elective credits. In addition, students graduating from general level courses find they do not have guaranteed access to community college programs.

The availability of advanced level courses within the broad-based technologies should encourage greater enrolment. However, the inclusion of a technological course as a compulsory or highly recommended credit towards graduation would increase its status. An alternative suggestion is the option to pick up a French credit in either the first or second year to allow Grade 9 students greater flexibility.

## Funding

OPSBA endorses the Ministry of Education's increased emphasis on technological education and supports the move towards development of broad-based technological programs. But without adequate funding at the provincial level, with incentives that encourage local boards to offer technological courses, the new approach will not receive the support it needs from those who must implement the new policies and initiatives.

Current provincial funding mechanisms are already inadequate and do not allow for capital costs for building or restructuring. Northern boards in particular have great difficulty taking advantage of these grants in terms of generating the local component of such funding.

In addition, the staff generation grant is unrealistic, generating only 671 grants to provide for 6,000 teachers. As a result, 4,200 will not receive grant dollars.

OPSBA notes that the $60 million for technological education announced recently by the Ministry was allocated entirely to secondary schools for equipment renewal. Funding is needed for the development of courses as well, at both elementary and secondary levels.

Not all boards will have access to funding for in-service programs through the technological equipment renewal fund. Technological teachers require upgrading and updating opportunities to make the transition into broad-based programs. Teachers in other disciplines need in-service support in order to understand and implement the new initiatives. The associated costs will be significant.

Other cost items associated with the restructuring of technological education include marketing activities.

If new initiatives in technological education are to be implemented properly, the province must assume the responsibility for providing adequate funding for necessary initiatives including: plant changes and upgrading, staff upgrading, supply teachers, sabbaticals and paid leaves for training, and teacher assistants. Local boards cannot afford the cost.

## Conclusions

First, in the words of Professor J. Dale Burnett at the National Conference on Curriculum, Instruction and Leadership, "we must continue to reflect on our educational goals. A job not worth doing is not worth doing well."

The next step in the consultation process should be the development of an overall framework which clearly states the goals of education and outlines the role of schools in society and what they are expected to achieve. Within this framework, discussions on the various segments of education can then take place. There is a need for coordination of all workteam activities at the Ministry level before addressing the issues surrounding technological studies and their place in the curriculum.

There must be a clear understanding on the part of school boards, teachers, students and the public at large of the meaning of "technological education" in today's context. This is an essential part of changing the image of technology and technological career options. A public relations campaign to promote technology should involve the Ministry of Education, Ministry of Skills Development, teacher organizations, labour, the private sector, school boards and educational institutions.

Adequate, ongoing funding and resources must be provided at the provincial level for teacher education and in-service initiatives. Technological teachers need opportunities to upgrade their skills to make the transition to teaching broad-based technologies. Teachers in other disciplines need appropriate instruction in integrating technological concepts in the curriculum and how to implement it. Adequate funding is also necessary to enable school boards to adapt plant and equipment to new standards.

Better linkages are needed between schools and business and industry and post-secondary institutions, which may encompass their expanded involvement in development of curriculum and curriculum materials.

OPSBA looks forward to participating in the continuing consultations.

## Ministry Issues and Options

### ISSUE 1: HOW CAN TECHNOLOGICAL LITERACY BE DEVELOPED AS A BASIC SKILL FOR ALL?

OPSBA supports the Ministry of Education's decision to promote and develop awareness and understanding of technology as a basic life skill for all students.

The earlier that technological concepts are introduced into the curriculum, the more likely that this goal can be achieved. Technological activities must be viewed as an integral part of the young child's routine, not as something unusual or different. Activities of a technical nature that already take place need to be identified and built on in later years.

While it may be feasible for a larger urban board to set up a technological resource centre, it is not a realistic option for small or even medium-sized boards, where teachers and students might be required to travel some distance to the centre. A mobile unit, already in use by the City of York Board of Education, for example, may be the more feasible option for the elementary panel, particularly in those areas with unique needs. As students move through school, they will need increased access to facilities designed and equipped to teach technological concepts.

As discussed earlier in this document, it will also be necessary to consider:

- public relations initiatives to change attitudes towards technology and technological studies;

- funding for teacher education and in-service (technological teachers who need updating or upgrading as well as non-technological teachers who will be required to integrate technological concepts into the rest of the curriculum).

### ISSUE 2: WHEN SHOULD TECHNOLOGICAL EDUCATION BEGIN?

Technological education can and should be implemented from the JK to OAC levels - the question is more what types of experience will be valid at each stage. The earlier the introduction of technological concepts into the curriculum, the more likely it is that technological education will gain acceptance and technological awareness become a basic life skill.

OPSBA stresses that technological education should not be viewed as "programs" in the early and formative years. Any initiatives must support the integration of technological

concepts in the curriculum, rather than their consideration as a separate subject. During the transition years, teachers should also employ an integrated approach using a variety of delivery methods that reflect the learning styles of students.

If the introduction of technological concepts is to begin at an early age, this will need to be incorporated into teacher education programs. In addition, funding will be necessary for the development of support documents and in-service programs for non-specialist teachers.

**ISSUE 3: HOW SHOULD FEMALES BE ENCOURAGED TO ACTIVELY PARTICIPATE IN TECHNOLOGICAL EDUCATION?**

While all possible action should be taken to ensure that women consider all career options as open to them, OPSBA is concerned that a narrow definition of the technologies tends to perpetuate stereotyping. Integration of women is therefore viewed as having more females in "non-traditional" roles. All females should be introduced in the early years to a variety of technologies.

While co-operative education programs and alternative out-of-school experiences are valuable for all students, in smaller communities this approach may not be possible, particularly during times of recession.

There is an overall need for professional development activities to assist teachers in identifying and correcting attitudes, language and teaching procedures that stereotype both males and females, and consequently restrict interests and career options for both sexes.

As noted earlier, career counselling and guidance programs that encourage females to enter technological careers should be part of an overall public relations program designed to enhance the image of technological studies and careers. Although adequate funding must be made available to upgrade and maintain shop facilities, steps must also be taken to change attitudes that distinguish unfavourably between "clean" and "dirty" career choices. Public perceptions in general must change if more female students are to consider careers in technology, and if those careers are to be open to them when they enter the workforce.

**ISSUE 4: HOW SHOULD PROVINCIAL CURRICULUM POLICIES BE DEVELOPED IF TECHNOLOGICAL EDUCATION IS TO BE INTEGRATED OVER THE EDUCATIONAL SPECTRUM?**

OPSBA supports the integration of technological education, but stresses again that it must take place within the context of education as a continuum.

While modification of existing documents to reflect an integrated model would require less time and fewer resources than the development of new documents, it is possible that these consultations will result in the need for new documents at various stages of the system.

## ISSUE 5: HOW SHOULD TECHNOLOGICAL EDUCATION BE MADE PART OF THE TRANSITION YEARS CORE CURRICULUM?

Definitions for both technological education and core curriculum are needed. However, OPSBA views core curriculum as a broad-outlined statement of required learning for all students, defined by both central and local bodies and interpreted by schools.

As indicated in the response to the Transition Years consultation paper, OPSBA supports a core curriculum for Grades 7, 8 and 9 students. It allows teachers to have an extended block of time with their students and contributes to a smoother transition into secondary school.

OPSBA also agrees with the integration of technological education into the core curriculum, taking the position that middle school students need integrated learning experiences and integrated units, themes and areas of study. However, individual boards should be permitted some flexibility, as implementation will be affected by school structure. Currently, most students move into high school in Grade 9.

Provision of both a basic core component and an optional elective would allow those with the interest and/or aptitude to pursue technological studies, while ensuring that all students - including female students - are exposed to some of the curriculum.

it is essential that provincial implementation plans include provision of funding for in-service - teachers need appropriate support in order to understand and support a new mode of delivery.

## ISSUE 6: HOW MUCH INFLUENCE SHOULD LOCAL NEEDS HAVE ON THE TECHNOLOGICAL EDUCATION PROGRAM OF STUDY, FROM THE BEGINNING OF ELEMENTARY SCHOOL TO THE END OF SECONDARY SCHOOL?

Today's students are being educated for jobs that may not yet exist. They are more mobile - they may leave their local community and migrate to other areas in search of work or further education. School programs designed primarily to meet current local needs will not serve students' future needs or best interests.

In many locations, local business or industry offers few prospects, and local needs exert little influence as it is. A community with two machine shops or four plumbing outlets can easily fill its needs. Nor is there any guarantee that jobs available today will still be there tomorrow. A one-industry town may die.

Even in larger areas with more diversified opportunities, it is not the role of the school to train students for specific jobs. Unions and industry are beginning to accept this and to assume their responsibility for providing the specialized training they require.

OPSBA agrees that the provincial core curriculum (however defined eventually) must support the acquisition of transferable skills and knowledge. Schools must take a global view. They are educating students for the world. Wherever they live, students should have access to educational opportunities that keep open a range of post-secondary and career options. At the same time, however, schools must retain the flexibility to incorporate local concerns within the provincial guidelines. Program objectives should be transferable; strategies for meeting those objectives should be developed with local input.

To educate students for global life requires appropriate funding and co-operation between the different ministries involved.

**ISSUE 7: HOW SHOULD OPPORTUNITIES FOR SPECIALIZED TRAINING BE ACCOMMODATED WITHIN THE BROAD-BASED TECHNOLOGIES?**

This issue presents several problems with respect to definition. Without a clear understanding of either "broad-based technologies" or "specialized training", it is difficult to consider any of the options.

For example, when would a student complete a broad-based program - in Grade 10? Grade 11? If the program were in the construction trades, perhaps, could she or he then opt for bricklaying or masonry? This in itself could pose problems. Students might expect a range of options, some of which were not within the capacity of the local board to provide, particularly a smaller board.

OPSBA reiterates that it is not the role of secondary schools to provide specialized training, nor can they afford state-of-the-art technological equipment. A broad-based program should provide an overview, enabling students to explore interests and options and develop a base for further learning, either in the workplace or at a post-secondary institution.. Initiatives such as SWAP, co-operative education and other linkages between schools and the business/industrial sector provide on-the-job experience. Formal articulation agreements with community colleges could provide students with opportunities to begin learning specific skills while still in high school.

As noted under Option 6, all students, regardless of where they live, should have equity of access to such opportunities. It may be necessary to consider arrangements such as billeting students, to enable them to take advantage of workplace and community college programs. This is an area in which, if not already the case, co-operation between the Ministry of Education and the Ministry of Skills Development would be useful.

## ISSUE 8: WHAT KINDS OF WORKPLACE LEARNING SHOULD SUPPLEMENT TECHNOLOGICAL EDUCATION PROGRAMS?

OPSBA believes that a variety of on-the-job learning opportunities should be made available to students wherever possible. These would include co-operative education programs and different forms of informal partnership as well as formal school-workplace apprenticeship programs. Many boards have entered into creative and mutually rewarding articulation agreements with local business and industry that benefit both students, teachers and employers.

At the same time, however, it must be recognized that these options are not distributed with equity across the province. Smaller or isolated communities may offer few if any workplace opportunities. In a one-industry town,
students may learn skills specific to current local needs, only for that industry to die.

Unfortunately, it is also evident that small businesses, which account for many co-operative education placements and a large percentage of future job opportunities, may withdraw from co-operative education programs during times of recession.

Ways must be found to compensate for the unequal distribution of workplace opportunities. These might range from encouragement for corporations to move into certain areas, to the provision of funding to enable co-operative education students to spend time out of their own communities. School boards cannot provide solutions on their own.

## ISSUE 9: HOW SHOULD CO-OPERATIVE EDUCATION COMPLEMENT TECHNOLOGICAL EDUCATION?

As noted under the previous option, OPSBA supports co-operative education as one of a variety of methods of providing students with exposure to the workplace. Option 9.2 - "Co-operative Education should be offered to enhance all technological programs and to explore career opportunities" - would make an admirable goal; it is not, however, a viable option that such programs should be mandatory, particularly in smaller communities.

The suggestion that alternative out-of-school learning experiences be provided for younger students is preferable, although this too would require acceptance by the community and appropriate funding would be required.

**ISSUE 10: H0W SHOULD THE UNIQUE NEEDS OF THE INDIVIDUAL STUDENT BE MET?**

OPSBA prefers to withold comment on an issue of this scope while different segments of the education system are still under consideration elsewhere. It is premature to consider the unique needs of the individual student without hearing the Ministry's comments regarding the consultation on the early, formative and transition years, and before the consultation paper on the specialization years has been issued.

As a general observation, it should be the aim of every school that programs, facilities and delivery modes be sufficiently flexible to accommodate virtually every student. Given the current grant structure, however, it is not realistic. Factors for consideration in this context include the needs of exceptional students and the effect of class size on a teacher's ability to respond to individual students' needs.

**ISSUE 12: AT WHAT STAGE SHOULD THE ACQUISITION OF SPECIFIC SKILLS OCCUR?**

OPSBA does not believe it is the role of the schools to teach specific job skills. It is impossible to predict what skills will be required for tomorrow's jobs. Linkage programs involving business and industry can provide students with opportunities for exposure to the workplace and the kinds of skills required. The development of programs linking school courses with community college programs could provide a continuum allowing students to begin acquiring specific skills while still in secondary school, and be assured of a place in the college on completion of the program.

**ISSUE 13: HOW SHOULD TEACHER EDUCATION BE RESTRUCTURED FOR TEACHERS OF TECHNOLOGICAL EDUCATION?**

This topic is covered in more detail in the section on teacher education.

Briefly, it is essential that all teachers receive adequate preparation prior to implementation of any new initiative or approach. Funding must be available for updating and upgrading courses for technological teachers and such courses should be recognized as valid towards obtaining a degree.

While technological teachers should be encouraged to take advantage of short-term leave and exchange opportunities to remain current in business and industry, this will be difficult to implement unless funding is provided for paid leave. Within the school, various co-operative models such as shadowing and classroom visiting are useful but should supplement rather substitute for co-ordinated updating and upgrading programs.

It is crucial that programs offered by the Faculties of Education reflect the changes in pedagogy and philosophy that result in the integration of technological studies into the curriculum. These initiatives can only be successful if teachers are trained to understand them, appreciate their goals and implement them.

Consideration must also be given to teacher education and in-service programs for the non-technological teachers who will be expected to integrate technological concepts into other subject areas.